

## CLAIMS

1. An optical receiver comprising:

a pre-amplifying unit that performs voltage conversion and amplification of an output of a light-receiving element that receives a light signal and converts the received light signal into a current signal; and

a regenerating unit including a discriminating circuit that receives an output signal of the pre-amplifying unit as an input signal and performs a signal discrimination of the input signal based on a threshold generated based on the input signal, wherein

the pre-amplifying unit includes a first average detecting circuit that detects an average of output signals of the pre-amplifying unit, and controls an amplification gain of the pre-amplifying unit based on an output of comparison between an output of the first average detecting circuit and a predetermined reference voltage, and

the regenerating unit includes a second average detecting circuit that detects an average of input signals to the discriminating circuit, and outputs an output of the second average detecting circuit to the discriminating circuit as a threshold for signal discrimination of the input signal.

2. The optical receiver according to claim 1, wherein the regenerating unit further includes

a comparing circuit that receives an in-phase output and a reverse-phase output of the discriminating circuit as a differential input;

a buffer unit that holds the output of the second average circuit;

a sample-and-hold circuit that holds or transmits an output of the comparing circuit; and

an offset adjusting circuit that adjusts offset components of the buffer unit based on an output of the sample-and-hold circuit.

5     3.     The optical receiver according to claim 2, wherein  
            offset adjustment by the offset adjusting circuit is  
            performed in a non-signal period after switching power on.

10     4.     The optical receiver according to claim 2, wherein  
            offset adjustment by the offset adjusting circuit is  
            performed in a non-signal period between the light signals.

15     5.     A discrimination-threshold generating method for an  
            optical receiver, the optical receiver including a pre-  
            amplifying unit that performs voltage conversion and  
            amplification of an output of a light-receiving element  
            that receives a light signal and converts the received  
            light signal into a current signal, and a regenerating unit  
            including a discriminating circuit that receives an output  
20     signal of the pre-amplifying unit as an input signal and  
            performs a signal discrimination of the input signal based  
            on a threshold generated based on the input signal, the  
            discrimination-threshold generating method comprising:

25             a gain control step of controlling an amplification  
            gain of the pre-amplifying unit based on an output of  
            comparison between a first average detection output  
            obtained by detecting an average of input signals to the  
            pre-amplifying unit and a predetermined reference voltage;  
            and

30             a discrimination-threshold outputting step of  
            outputting a second average detection output obtained by  
            detecting an average of input signals to the discriminating  
            circuit to the discriminating circuit as a threshold for

performing signal discrimination of the input signal.